L 22121-66

ACC NR: AP6004921

300 Mcs by the coaxial-line method. Other specific properties of $BiFeO_3$ in addition to the large internal fields and large spontaneous polarization, were a high Curie temperature (850C), and the absence of nonlinear properties at room temperature. An analysis of all the published data and the present results shows that in spite of the fact that the spontaneous electric polarization of $BiFeO_3$ is very high, so that no dielectric hysteresis loops could be obtained, this substance is ferroelectric. Various reasons for this conclusion are discussed. An analysis of the magnetic properties below the Neel temperature (370C) also shows that $BiFeO_3$ has compensated ferromagnetism in addition to ferroelectricity. Orig. art. has: 5 figures.

SUB CODE: 20,07/ SUBM DATE: 17Aug65/ ORIG REF: 022/ OTH REF: 002

Card 2/2 BK

L 01052-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6030956 SOURCE CODE: UR/0181/66/008/009/2594/2597 44 B

AUTHOR: Kashlinskiy, A. I.; Chechernikov, V. I.; Venevtsev, Yu. N.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Investigation of electron resonance and magnetic properties in solid solutions of the system

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2594-2597

TOPIC TAGS: electron spin resonance, electron spectrum, EPR spectrum, solid solution, bismuth ferrate, barium titanate

ABSTRACT: The spectra of electronic resonance in solid solutions of the system bismuth ferrate barium titanate have been investigated. The clearly defined anomalies in the spectra are determined, corresponding to the dielectric and magnetic transitions in solid solutions in conformity with tetragonal and rhombohedral modifications. The data on changes in the EPR spectra are analyzed in relation to the properties of solid solutions under study. Orig. art. has: 2 figures. [NT]

[Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 14Jan66/ ORIG REF: 009/

Card 1/1 awm

Venevtsev, Yu. N., [illegible]

ORG: none

TITLE: Mossbauer effect in the ferroelectric $Pb(Fe_{1/2}Nb_{1/2})O_3$

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 5, 1966, 212-216

TOPIC TAGS: ferroelectric material, Mossbauer spectrum, miltiplet splitting, critical point, phase transition, Curie point, electron spin

ABSTRACT: The purpose of the investigation was to check on the presence of a minimum of the probability of the Mossbauer effect on Sn^{119} in the investigated compound, similar to that observed for $Ba(TiSn)O_3$ (with different Ti/Sn ratios) by V. A. Bokov et al. (FTT v. 7, 1886, 1965 and elsewhere). It was also desired to check on other singularities in the behavior of the quadrupole splitting and of the position of the symmetry center of the Mossbauer spectrum observed near the temperature T_c of the ferroelectric phase transition. To this end, the authors investigated the variation of the parameter of the Mossbauer absorption spectrum of Fe^{57} nuclei of the ferroelectric in question at the phase transition temperature (T_c = 114C). The absorbers were made by the usual ceramic technology, using $Fe_2^{57}O_3$ (60% Fe^{57}). The source was Co^{57} in stainless steel. The apparatus for the Mossbauer spectra is described by the authors elsewhere (PTE No. 4, 43, 1964). The results confirm the existence of the

Card 1/2

singularities in the vicinity of the Curie point T_c = 214C and a minimum in the Mossbauer-effect probability. These singularities are apparently connected with the fact that an anomalous decrease in the frequency of one of the transverse optical branches of the lattice takes place on approaching the ferroelectric transition point in crystals with perovskite structure. The decrease in the quadrupole splitting with increase of temperature to T_c is connected with a decrease in the spontaneous polarization. The asymmetry of the quadrupole-splitting line, which has a minimum near T_c [illegible] the Mossbauer-effect probability [illegible]

investigation of the [illegible] crystal structure [illegible] formation on the dynamics [illegible] Churkreyev and [illegible] ferroelectric transition. The [illegible] [illegible]

[illegible] meter [illegible]

ACC NR: AP7006214 SOURCE CODE: UR/0363/67/003/001/0208/0209

AUTHOR: Shapiro, Z. I.; Fedulov, S. A.; Venevtsev, Yu. N.

ORG: Physicochemical Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: Determination of the Curie temperature of the ferroelectric $LiNbO_3$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 3, no. 1, 1967, 208-209

TOPIC TAGS: Curie point, lithium compound, niobate, ferroelectric crystal, dielectric constant

ABSTRACT: In order to refine the Curie point of $LiNbO_3$, temperature measurements of the dielectric constant were made on single crystals of both $LiNbO_3$ and a solid solution of the composition $Li(Nb_{0.9}Ta_{0.1})O_3$. The Curie temperature, determined from dielectric constant maxima, was found to be 1210±10°C for $LiNbO_3$ and 1120±10°C for the solid solution. In $LiNbO_3$, the dielectric constant along the polar axis is much less than in the perpendicular direction, as in the case of barium titanate single crystals. Some anomalies in the dielectric constant were found in the 600-950°C range. Thermographic measurements showed the melting point of $LiNbO_3$ to be 1240±5°C. Of all known ferroelectrics, $LiNbO_3$ has the highest Curie point. The data obtained on the Curie and melting points of $LiNbO_3$ are of major importance for the preparation of single-domain single crystals with higher dielectric, optical and piezoelectric properties.

Card 1/2 UDC: 537.226.33

ACC NR: AP7006214

Authors are grateful to G. P. Kuznetsova, V. L. Farshtondikov and R. M. Tolchinskaya for assistance in the determination of the melting point. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 13Apr66/ ORIG REF: 003/ OTH REF: 004

Card 2/2

L 31171-66 EWT(1)/EWT(m)/T/EWP(t) IJP(c) JD/GG

ACC NR: AP6006823 SOURCE CODE: UR/0181/66/008/002/0416/0423

AUTHOR: Viskov, A. S.; Venevtsev, Yu. N.

ORG: Physicochemical Scientific Research Institute im. L. Ya. Karpov, Moscow (Nauchno-issledovatel'skiy fiziko-khimicheskiy institut)

TITLE: Calculating the gradients of the intracrystalline field in barium titanate ferroelectric and in model crystals based on this salt

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 416-423

TOPIC TAGS: barium titanate, crystal theory, ferroelectric crystal

ABSTRACT: A method based on the ion model is proposed for calculating the gradients of the intracrystalline field ∇E which act on the ions in the tetragonal modification of ferroelectric barium titanate. The structural coefficients used in calculating the gradients were taken from experimental data in the literature. Curves are given showing the difference in lattice parameters (c-a) as a function of temperature. The effect which temperature has on spontaneous polarization, the intracrystalline field and the gradients of the field is analyzed for the same modifi-

Card 1/2

L 31171-66

ACC NR: AP6006823

2

cation of barium titanate. The gradients are studied as a function of charge and polarizability of A and B cations in ABO_3 crystals of the $BaTiO_3$ type. The proposed method gives results which agree satisfactorily with the experimental data in the literature. The ion model is found to be highly effective for evaluating electric field intensities and gradients in ferroelectrics which are basically metal oxides. The results of this paper may be useful for interpreting experimental data on the Mössbauer effect and nuclear quadrupole resonance in isomorphic barium titanate compounds as well as in solid solutions with a perovskite structure. The authors thank G. S. Zhdanov and V. N. Lyubimov for useful consultation and interest in the work. Orig. art. has: 6 figures, 2 tables, 2 formulas.

SUB CODE: 20/ SUBM DATE: 28Apr65/ ORIG REF: 008/ OTH REF: 010

Card 2/2 LC

TOMASHPOL'SKIY, Yu.Ya.; VENEVTSEV, Yu.N.

Ferromagnetism in the system Pb_2CoWO_6 — $BaTiO_3$. Fiz. tver. tela 7 no.10:3126-3128 O '65. (MIRA 18:11)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova, Moskva.

ROGINSKAYA, Yu.Ye.; VENEVTSEV, Yu.N.

Structure and magnetic properties of solid solutions in the system $BiFeO_3$ - $LaCrO_3$. Fiz. tver. tela 7 no.2:400-406 F '65. (MIRA 18:8)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova, Moskva.

TOMASH-POLONSKIY, Yu.Ya.; VEREVTSEV, Yu.N.; ANTONOV, G.N.

Ferromagnetic substances in the system $PbFe_2/3A1/3O_3$ — Pb_2YbNbO_6.
Zhur. eksp. i teor. fiz. 49 no.2:367-372 Ag '65. (MIRA 18:9)

1. Fiziko-khimicheskiy institut imeni Karpova.

VISKOV, A.S.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

New ferroelectric substances with the structure of perovskite and pyrochlore. Dokl. AN SSSR 162 no.2:323-325 My '65. (MIRA 18:5)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova. Submitted December 2, 1964.

KAPYSHEV, A.G.; VEREVTSEV, Yu.N.

X-ray diffraction study of variations in the period of elementary cells of (Ba, Pb)TiO_3 solid solutions in the paraelectric region as dependent on the composition. Kristallografiia 8 no.2:269-270 Mr-Ap '63. (MIRA 17:8)

1. Fizikc-khimicheskiy institut imeni Karpova.

TOMASHPOL'SKIY, Yu.Ya.; [illegible], Yu.N.

New lead-containing perovskites. Fiz. tver. tela 7 no.2:517-520 F '65. (MIRA 18:6)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova, Moskva.

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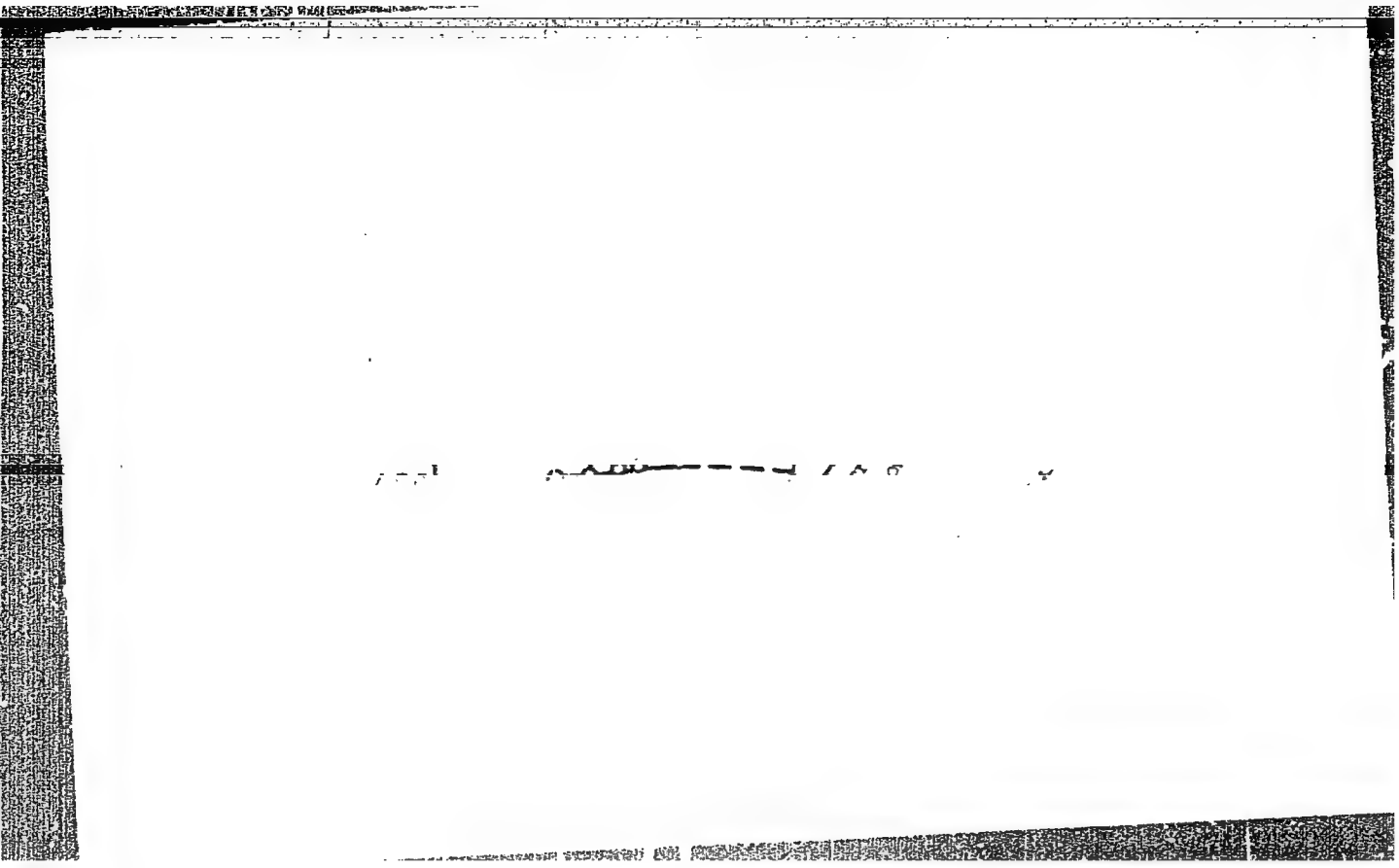
tion is reduced. However, the relaxation maxima take place at

ACCESSION NR:

BiFeO3 content is greater than 60%, cubic modification



ROGINSKAYA, Yu.Ye.; VENEVTSEV, Yu.N.

Structure and dielectric properties of Pb_2CdWO_6. Kristallografiia 10 no.3:341-345 My-Je '65. (MIRA 18:7)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

L 4263-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(t)/EPA(w)-2/EWP(t)/EWP(b) LJP(c) WH/JD
ACC NR: AP5024548 SOURCE CODE: UR/0070/65/010/005/0644/0649
548.736.537.226

AUTHOR: Viskov, A. S.; Venevtsev, Yu. N.; Zhdanov, G. S.

TITLE: Study of the structure and magnetic and electric properties of solid solutions in the system $BiFeO_3$ - "$Sr(Sn_{1/3}Mn_{2/3})O_3$"

SOURCE: Kristallografiya, v. 10, no. 5, 1965, 644-649

TOPIC TAGS: solid solution, Neel temperature, Curie point, antiferromagnetic material, spontaneous magnetization, bismuth compound, iron compound, strontium compound, tin compound, manganese compound

ABSTRACT: The samples were prepared by the usual ceramic process from Bi_2O_3, SnO_2, $SrCO_3$, Fe_2O_3, and MnO_2 (firing at 75 — 1100C at 4 — 6 hr and again at 820 — 1600C for 1 — 2 hr). After each firing, the phase composition of the samples was checked by x-ray diffraction. The latter showed that the system $BiFeO_3$ - "$Sr(Sn_{1/3}Mn_{2/3})O_3$" [illegible] exist in four modifications [illegible]. The Neel temperatures [illegible] of the various samples were determined [illegible] pendence of spontaneous magnetization, [illegible] with a weak ferromagnetism. It was found that in the system studied there is a [illegible]

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L ... ...
ACC NR AP5024548

solid solutions in which a magnetic and an electric dipole structure exist over a wide temperature range. No distinct correlation was noted between these structures, and no special effort is made to elucidate it. We thank Ya. Ye. Roginskiy for valuable suggestions and comments." Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 10Jun64 ENCL: 00 SUB CODE: SS, EM

NO REF SOV: 010 OTHER: 003

ROGINSKAYA, Yu.Ye.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

Structure and magnetic properties of ferroelectric solid solutions in the system Pb_2CoWO_6 -- $CdMnO_3$. Izv. AN SSSR. Ser. fiz. 29 no.6: 1022-1025 Je '65. (MIRA 18:6)

SHAPIRO, Z.I.; FEDOROV, S.A.; [illegible], Yu.N.; RICHERSON, L.G.

Study of the system $LiTaO_3$ - $LiNbO_3$. Izv. AN SSSR. Ser. fiz. 29 no.6:1047-1050 Je '65. (MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov.

ROGINSKAYA, Yu.Ye.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

New ferromagnetic substances. Zhur. eksp. i teor. fiz. 48 no. 5 (MIRA
1224-1232 My '65.

1. Nauchno-issledovatel'skiy fiziko-khimicheskoy institut imeni
L. Ya. Karpova, Moskva.

L 1984-66 EWT(s)-2/EWT(l)/EWT(m)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c)
EJP(c) JD/JG/GG
ACCESSION NR: AP5021093 UR/0056/65/049/002/0367/0372

AUTHOR: Tomashpol'skiy, Yu. Ya.; Venevtsev, Yu. N.; Antonov, G. N.

TITLE: Ferroelectric-magnetic materials in the system $PbFe_{2/3}W_{1/3}O_3$--Pb_2YbNbO_6

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 2, 1965, 376-372

TOPIC TAGS: ferroelectric material, antiferromagnetic material, lead containing alloy, iron containing alloy, tungsten containing alloy, niobium containing alloy, solid solution

ABSTRACT: New ferroelectric-magnetic materials with perovskite structure were prepared in polycrystalline form by firing the oxides WO_3, Fe_2O_3, Nb_2O_5, and Yb_2O_3 and the carbonate $PbCO_3$ at 700--1000C for 1--7 hours. The techniques used for the crystal-structure measurements at high temperatures and for the phase measurements were described by the authors earlier (FTT v. 6, 2998, 1964 and Zav. lab. no. 9, 1112, 1961). The dielectric measurements were made by a standard bridge method, and the magnetic measurements by the Faraday method. The tests showed that several solid solutions are formed in the $PbFe_{2/3}W_{1/3}O_3$--Pb_2YbNbO_6 system, some of which combine ferroelectric or antiferroelectric properties with ferrimagnetic ones over a relatively wide range of concentrations and temperatures. Some results were ob-

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ACCESSION NR: AP5021093

tained, which indicated a coupling between the electric and magnetic dipole structures in the investigated compositions. The results may be of use in microwave technology. "The authors thank G. S. Zhdanov for discussing the results and B. A. Strukov for help." Orig. art. has: 6 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 30Jan65 ENCL: 00 SUB CODE: SS, MM

NR REF SOV: 010 OTHER: 001

Card 2/2

L 4077-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) JD

ACC NR: AP5026591 SOURCE CODE: UR/0056/65/049/004/1038/1041

32
B

AUTHOR: Shvorneva, L. I.; Venevtsev, Yu. N.

ORG: Physicochemical Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: Perovskites with ferroelectric properties

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1038-1041

TOPIC TAGS: ferroelectric material, ferroelectric property perovskite, inorganic synthesis

ABSTRACT: In view of the important practical applications of ferroelectric compounds and of the necessity for a closer study of their properties, specimens of single-phase perovskites of the solid solutions have been synthesized [illegible] approaching the composition [illegible] III) (Pb$_{0.95}$Ba$_{0.05}$) [illegible] synthesis was conducted [illegible] PbCO$_3$, Nb$_2$O$_5$, NiO, Ta$_2$O$_5$, and [illegible] specimens II, III, [illegible] IV is a ferromagnetic-ferroelectric. The magnetic and electric Curie points [illegible]

Card 1/2

L 4077-66

ACC NR: AF[illegible]

T_{ce}) were: I) -140C and -40C; II) -120C and -70C; III) -10C and -100C; IV) < -170C and +40C. Orig. art. has: [illegible] figure and 1 table. [BC]

[illegible]

KAPYSHEV, A.G.; VENEVTSEV, Yu.N.; SOLOV'YEV, S.P.; GORBUNOV, L.A.; ZHDANOV, G.S.

X-ray chambers for high-temperature studies. Zav. lab. 30 no.10: 1274-1276 '64. (MIRA 18:4)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova.

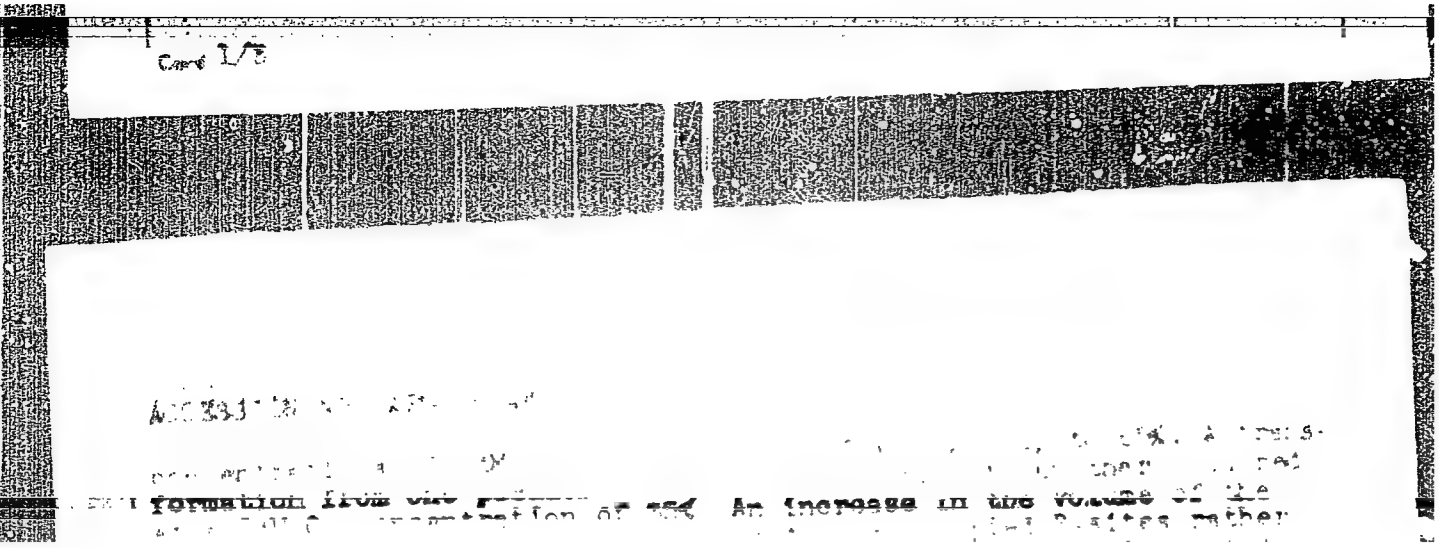
ACCESSION NR: AP5016146 UR/0048/65/029/006/1022/1025

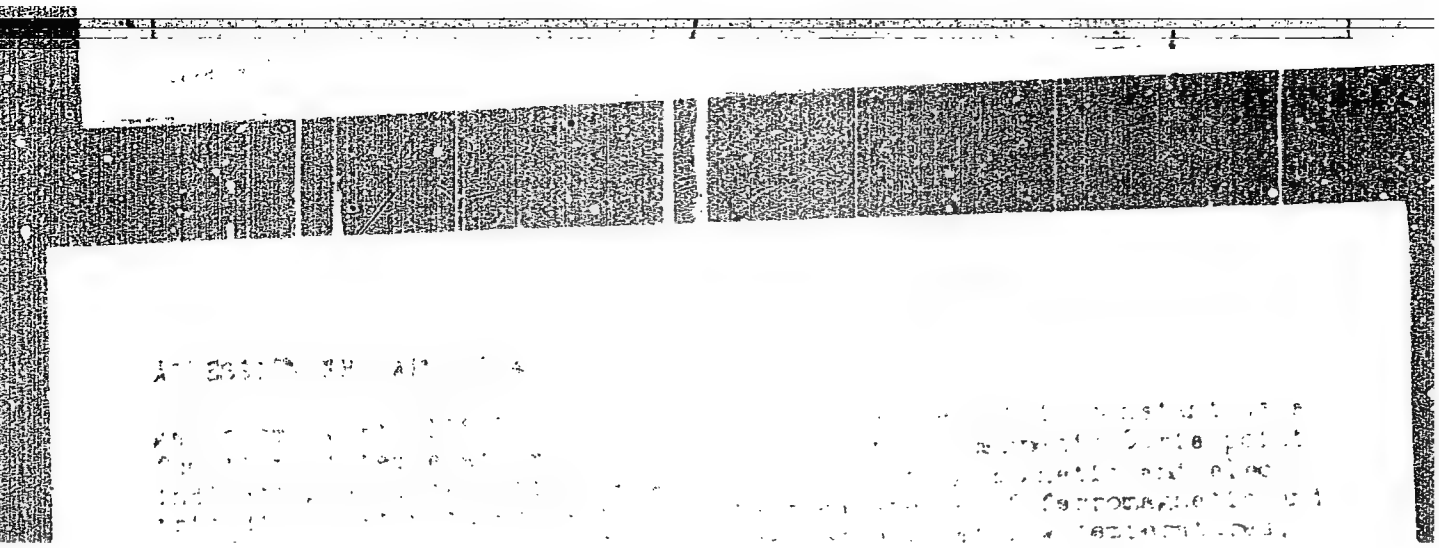
AUTHOR: [illegible] Agency, [illegible]

TITLE: Investigation [illegible] properties of ferroelectric [illegible] system [illegible] Sep 1964

SOURCE: [illegible]

TOPIC TAGS: [illegible] ferroelectricity, magnetization, polarization





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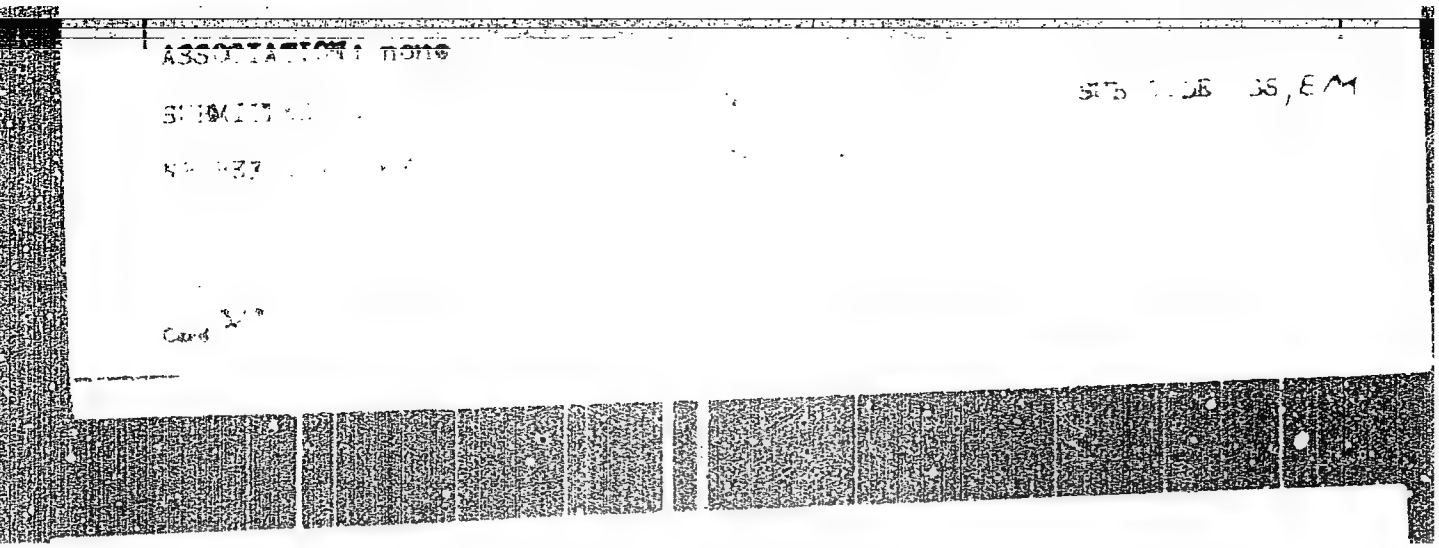

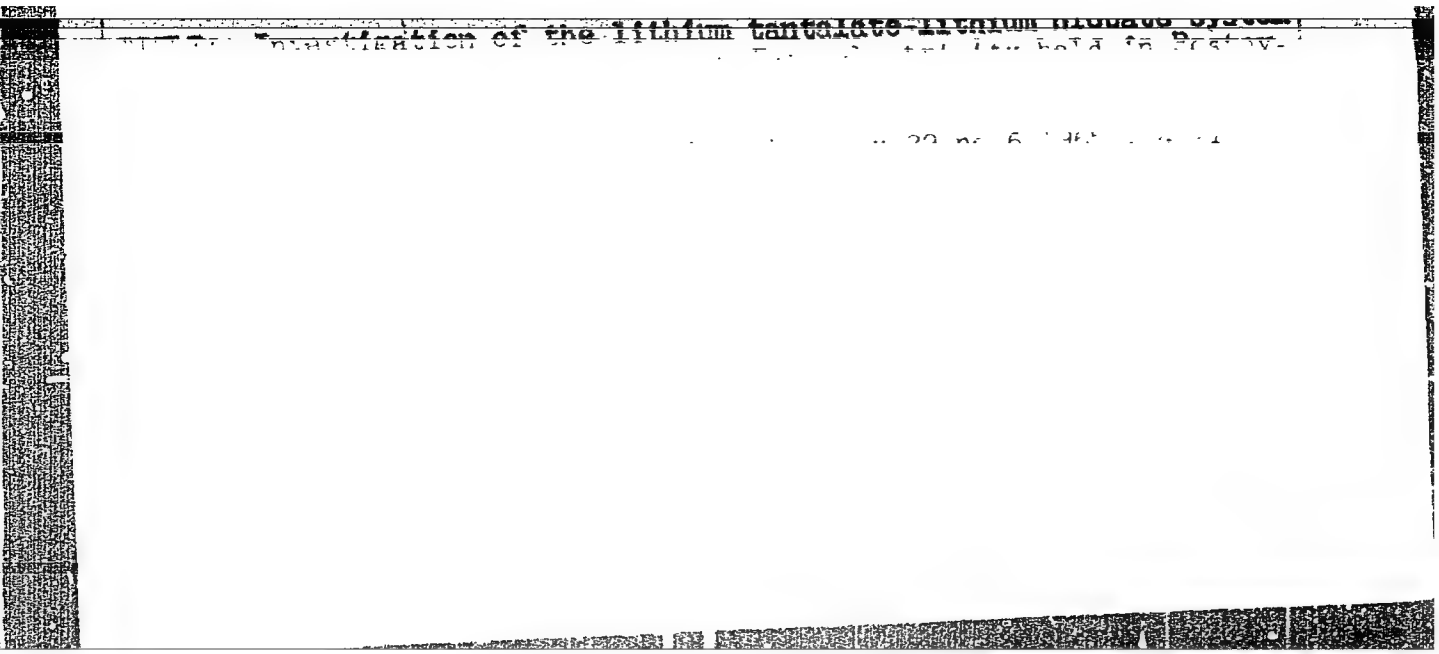

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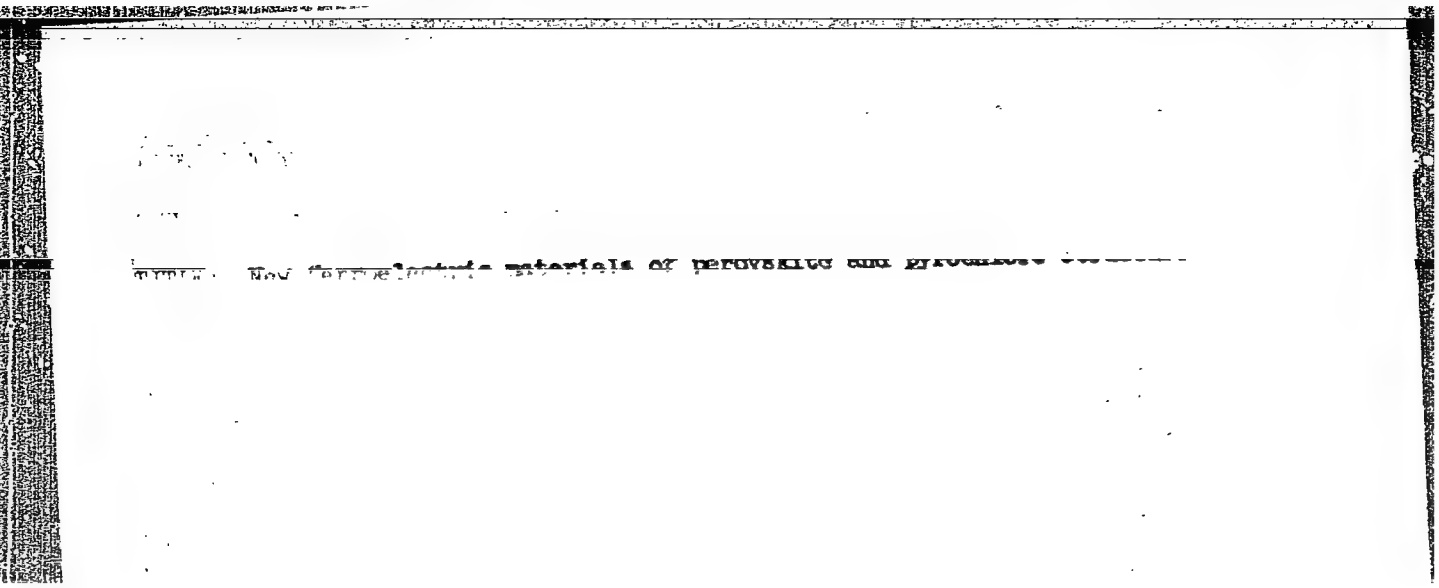
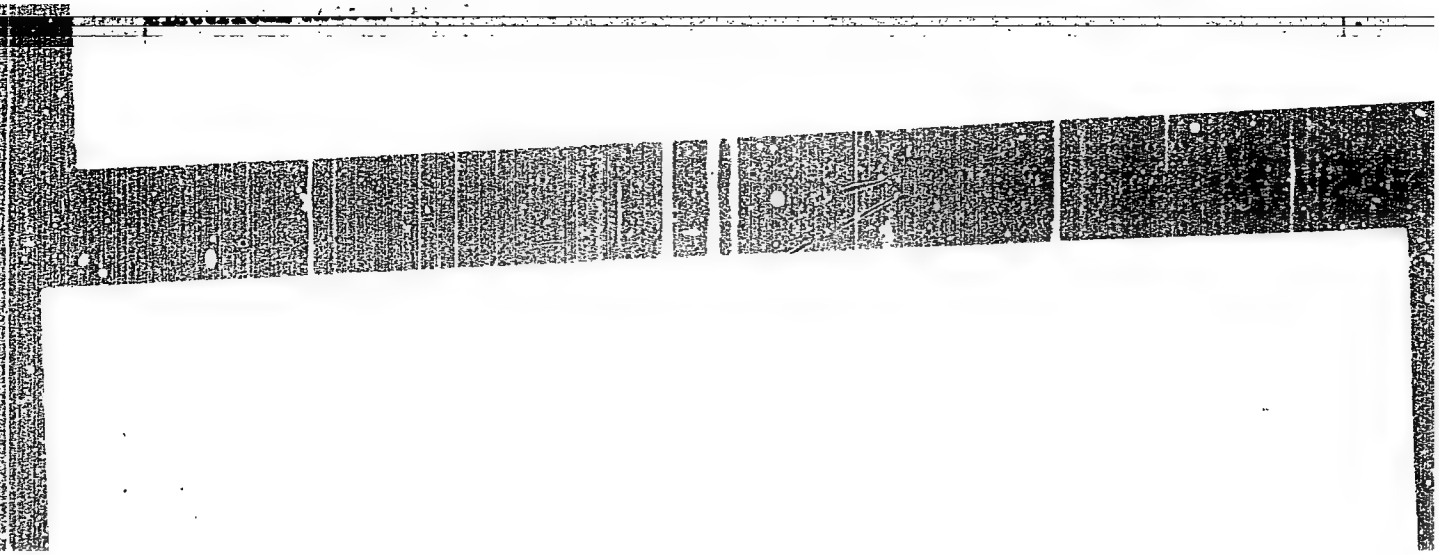
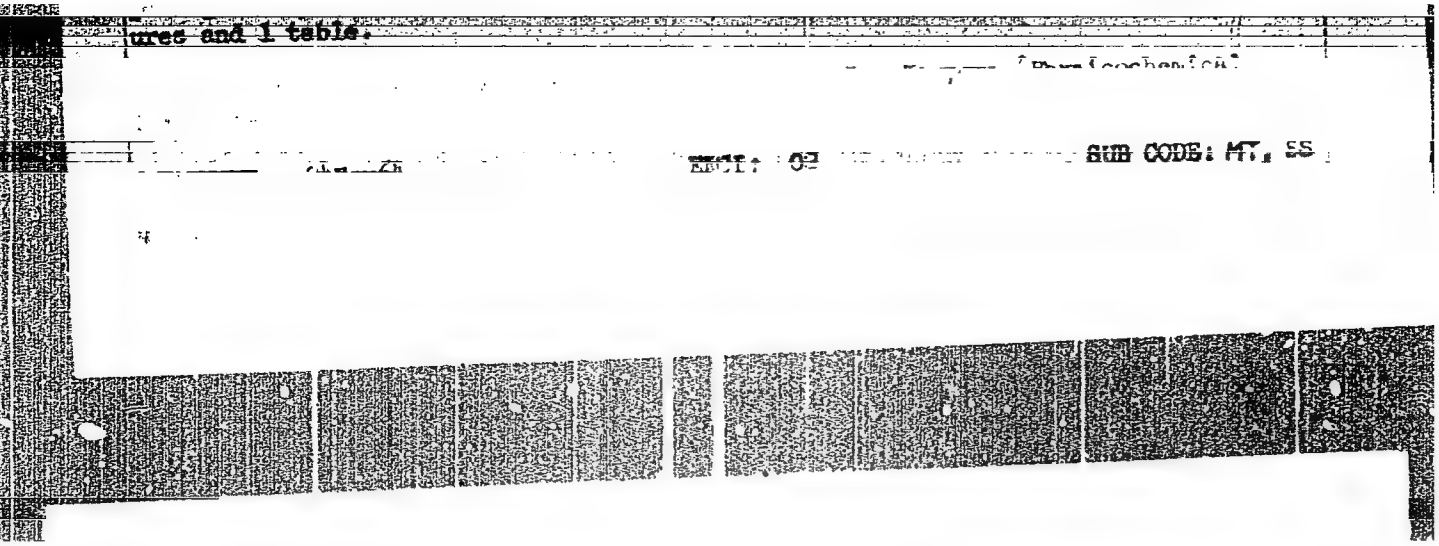
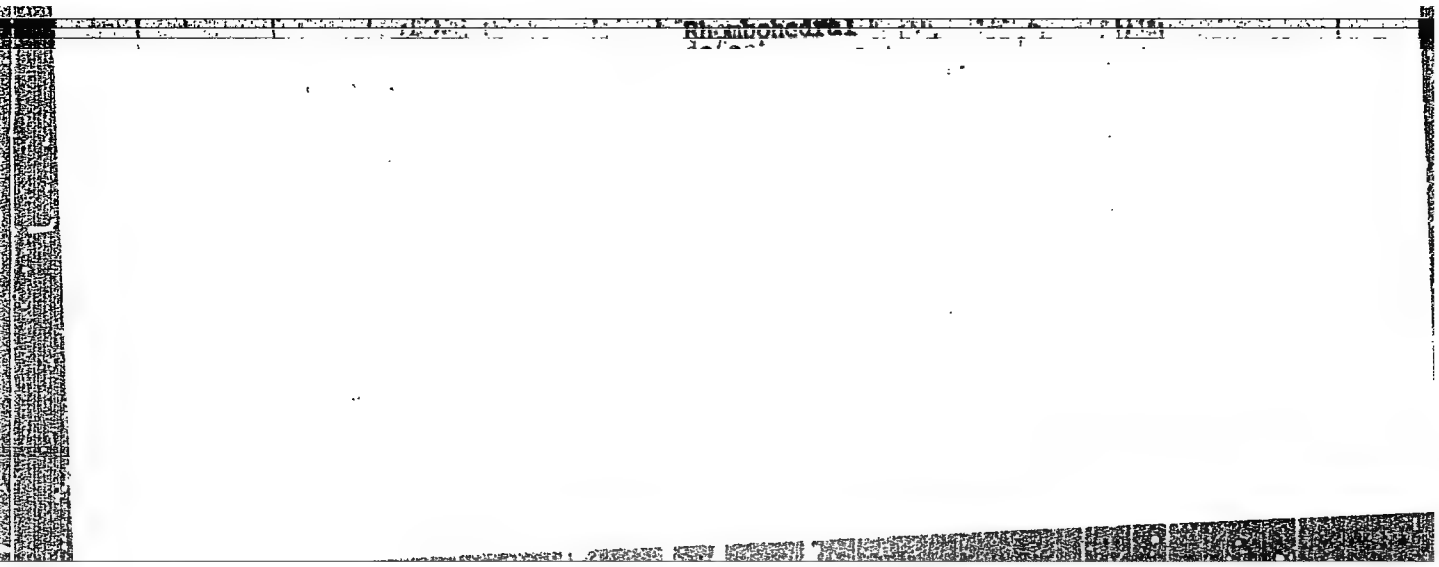




APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859410008-5"





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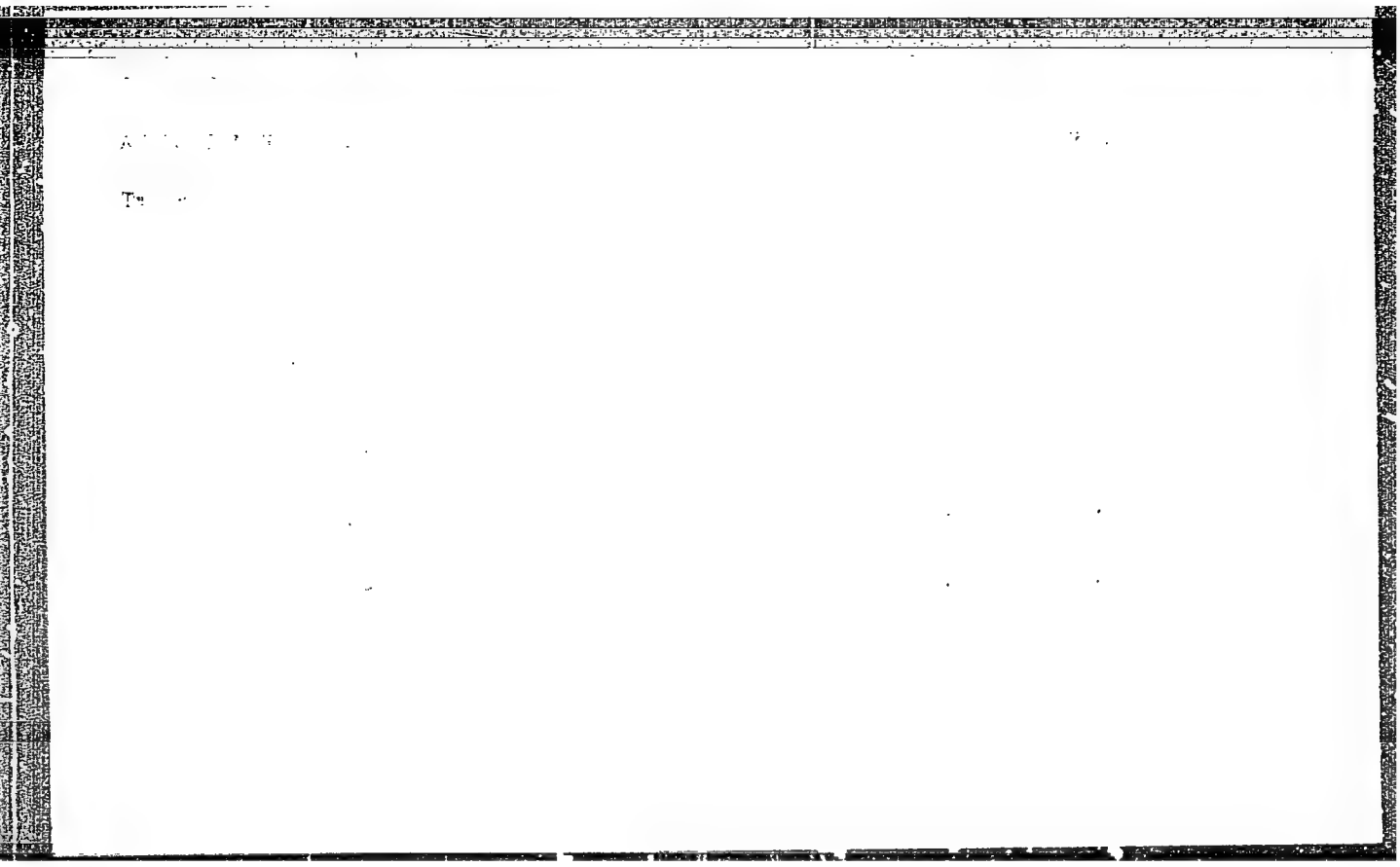


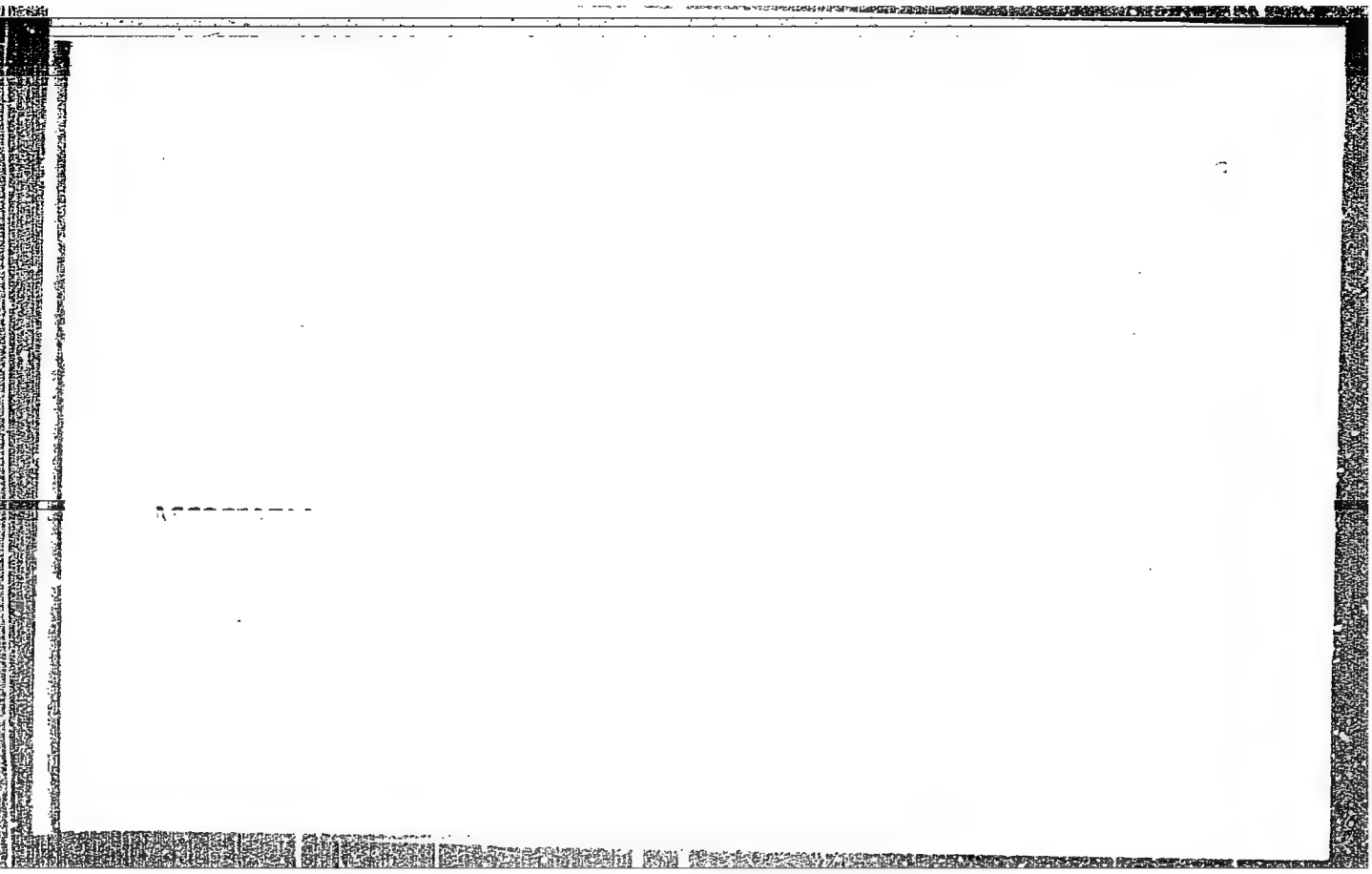
SOURCE: Fizika tverdogo tela, v. 6. —

Earlier studies of these compounds were made on samples
ination was made

Card 1/3

[redacted] prepared by ceramic sintering [redacted]

[redacted]



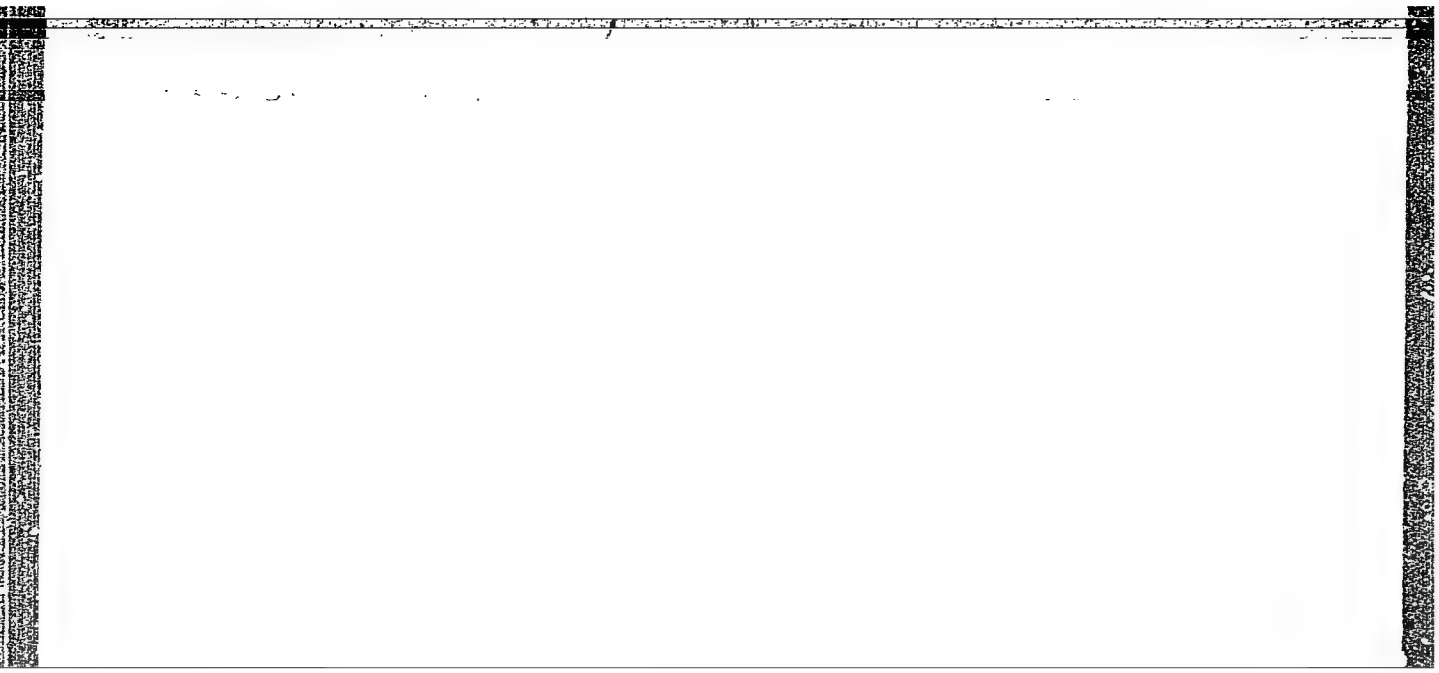
VENEVTSEV, Yu.N.; ROGINSKAYA, Yu.Ye.; VISKOV, A.S.; IVANOVA, V.V.; TOMASHPOL'SKIY, Yu.Ya.; SHVORNEVA, L.I.; KAPYSHEV, A.G.; TEVEROVSKIY, A. Yu.; ZHDANOV, G.S.

New lead-containing perovskite compounds of complex composition. Dokl. AN SSSR 158 no.1:86-88 S-O '64 (MIRA 17:8)

1. Fiziko-khimicheskiy institut imeni L. Ya. Karpova. Predstavleno akademikom N.V. Belovym.

VENGEROVSKIY, I.S., prof. (Tomsk)

Review of the book "Problems of pediatric surgery". Khirurgiia 39 no.11:141-145 N '63. (MIRA 17:11)



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001859410008-5"

Orig. art. has: 3 figures.

[illegible] Ya. Kamenova (Physicochemical

VENEVTSEV, Yu. N.; LYUBIMOV, V. N.; SOLOV'YEV, S. P.; ZHDANOV, G. S.

Calculation of internal electric fields and their gradients in perovskite compounds with specific dielectric properties. Izv. AN SSSR. Ser. fiz. 28 no. 4:630-635 Ap '64. (MIRA 17:5)

MITROFANOV, K.P.; VISKOV, A.S.; DRIKER, G.Ya.; PLOTNIKOVA, M.V.; FAM ZUI KHIYEN; VENEVTSEV, Yu.N.; SHPINEL', V.S.

Changes in the resonance absorption spectra of 23.8 Kev. gamma rays from Sn^{119} during phase transitions in the system $BiFeO_3$—$Sr(Sn_{1/3}Mn_{2/3})O_3$. Zhur. eksper. i teor. fiz. 46 no.1:383-386 Ja'64. (MIRA 17:2)

1. Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta i Fiziko-khimicheskiy institut imeni Karpova.

TOMASHPOL'SKIY, Yu.Ya.; VENEVTSEV, Yu.N.; ZHDANOV, G.S.

Electron diffraction study of the crystalline structure of $BiFeO_3$. Dokl. AN SSSR 153 no.6:1313-1314 D '63.
(MIRA 17:1)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova. Predstavleno akademikom N.V. Belovym.

SOLOVYEV, S. P.; LYUBIMOV, V. N.; VENEVTSEV, Yu. N.; ZHDANOV, G. S.

"The calculations of the internal electric fields and electric-field gradients in the perovskite-type compounds with special dielectric properties."

report submitted for 6th Gen Assembly, Intl Unionof Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

VENEVTSEV, Yu. N.; ZHDANOV, G. S.; ROGINSKAYA, Yu. Ye.; FEDULOV, S. A.; IVANOVA, V. V.

"Investigation of some solid solutions based on the ferroelectric-antiferromagnetic $BiFeO_3$."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Karpov Inst of Physical Chemistry, Moscow.

FEDULOV, S.A.; LADYZHINSKIY, P.B.; PYATIGORSKAYA, L.I.; VENEVTSEV, Yu.N.

Complete phase diagram of the system $PbTiO_3$ - $BiFeO_3$. Fiz. tver. tela 6 no.2:475-478 F '64. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv, Moskva.

SHAPIRO, Z.I.; FEDULOV, S.A.; VENEVTSEV, Yu.N.

Curie temperature of the ferroelectric $LiTaO_3$. Fiz. tver. tela 6 no.1:316-317 Ja '64. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv, Moskva.

ACCESSION NR: AP4012566 S/0056/64/046/001/0383/0386

AUTHORS: Mitrofanov, K. P.; Viskov, A. S.; Driker, G. Ya.; Plotnikova, M. V.; Fam, Zui Khiyen; Venevtsev, Yu. N.; Shpinel', V. S.

TITLE: Change in resonance absorption spectra of 23.8 keV gamma rays of Sn-119 during phase transitions in the system $BiFeO_3$-$Sr(Sn_{1/3}Mn_{2/3})O_3$

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 383-386

TOPIC TAGS: resonance absorption, Mossbauer effect, recoilless resonance absorption, ferroelectric antiferromagnetic compound, ferroelectricity, ferro antiferromagnetism, group II stannate, resonance absorption maximum, resonance absorption jump, Mossbauer effect jump, magnetic hyperfine splitting

ABSTRACT: This is a continuation of an earlier investigation by some of the authors (ZhETF v. 44, 2182, 1963) and is aimed at im-

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ACCESSION NR: AP4012566

proving the earlier results and finding the reason for the abrupt change in the relative counting rate at the absorption maximum (ε). The material used has properties similar to that of the earlier investigation, and the addition of manganese made the samples practically single-phase and closer to equilibrium. The test procedure is briefly described. The results indicate that the jump in the value of the Mossbauer effect in solid solutions based on $BiFeO_3$ is the result of magnetic hyperfine splitting (but is not caused by change in the probability of the effect), and is related to an antiferromagnetic phase transition. This conclusion is supported by magnetic measurement results. Orig. art. has: 3 figures.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Nuclear Physics Institute, Moscow State University); Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 27Sep63; DATE ACQ: 26Feb64 ENCL: 02

Card 2/2

ACCESSION NO: AP4013507 S/0181/64/006/002/0475/0478

AUTHORS: Fedulov, S. A.; Lady*shinskiy, P. B.; Pyatigorskaya, L. I.; Venevtsev, Yu. N.

TITLE: Complete phase diagram of the system $PbTiO_3$ $BiFeO_3$

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 475-478

TOPIC TAGS: phase diagram, PbTiO sub 3, BiFeO sub 3, piezoelectric, phase transition, Curie point, morphotropic phase transition, polarization, ferroelectric, ferromagnetic, Neel temperature, conductivity

ABSTRACT: Using x-ray investigations and electrical and magnetic measurements, the authors have constructed a complete phase diagram of the system $PbTiO_3$-$BiFeO_3$. This diagram is shown in Fig. 1 on the Enclosure. It is seen that in the region of the morphotropic phase transition the Curie point is very high (on the order of 700C), and it therefore seems suitable (in order to obtain high-temperature piezoelectric material) to introduce other material into the system to decrease the conductivity and to improve the conditions of polarization. The authors suggest, from this point of view, studies of the three-component systems $PbTiO_3$-$BiFeO_3$-$PbZrO_3$ and $PbTiO_3$-$BiFeO_3$-$LaAlO_3$. "The authors consider it their duty to express

Card 1/3

ACCESSION NO: AP4013507

thanks to Yu. Ye. Roginskaya for her aid in the work." Orig. art. has: 5 figures.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chisty*kh khimicheskikh veshchestv, Moscow (All-Union Scientific Research Institute of Chemical Reagents and Extra Pure Chemical Substances)

SUBMITTED: 12Aug62 DATE ACQ: 03Mar64 ENCL: 01

SUB CODE: PH NO REF SOV: 009 OTHER: 001

Card 2/3 2

ACCESSION NR: AP4011779 S/0181/64/006/001/0316/0317

AUTHORS: Shapiro, Z. I.; Fedulov, S. A.; Venevtsev, Yu. N.

TITLE: Curie point of ferroelectric lithium tantalate

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 316-317

TOPIC TAGS: ferroelectric lithium tantalate, Curie point, dielectric property, lithium carbonate, tantalum pentoxide, lattice parameter, hexagonal axis, rhombohedral axis, dielectric permeability, bridge MPP-300, piezoelectric effect

ABSTRACT: An attempt was made to determine the dielectric properties in ceramic specimens of lithium tantalate across a broad temperature range. Experimental specimens were produced from lithium carbonate and tantalum pentoxide. They were purified by two repeated heatings (60 min each), one at 1100C and one at 1350C. X-ray analysis and subsequent calculations proved that the lattice parameters of lithium tantalate were: on hexagonal axes -- $a_H = 5.153$ Å and $c_H = 13.775$ Å; on rhombohedral axes -- $a_{Rh} = 5.470$ Å and $\alpha_{Rh} = 56^{\circ}12'$. Dielectric permeabilities

Card 1/2

ACCESSION NR: AP4011779

were measured with a bridge MPP-300 at the frequency of 250 kilohertz. The curve of $\epsilon = f(T)$ showed a sharp maximum at the temperature of about 665C. Dielectric permeability at room temperature was 70, at the maximum it reached 1850. Above the Curie point the change in the dielectric permeability was calculated from the Curie-Weiss law. The specimens showed a weak piezoelectric effect. These results disprove the claim made by H. D. Megave (Acta Cryst., 7, 191, 1954; "Ferroelectricity in crystals," p. 103, London, 1957), to the effect that lithium tantalate forms simple pyroelectrical crystals. At the present time the authors are undertaking a study of properties exhibited by $LiTaO_3$ and $LiNbO_3$ and also of solid solutions based on these substances. Orig. art. has: 1 formula and 1 diagram.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chisty*kh khimicheskikh veshchestv, Moscow (All-Union Scientific Research Institute of Chemical Reactions and of Pure Chemical Materials)

SUBMITTED: 12Aug63 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: CH, PH NO REF SOV: 000 OTHER: 002

Card 2/2

FEDOV, S.A.; VENEVTSEV, Yu.N.

Transition region between the ferroelectric and paraelectric phases of the solid solutions (Pb, Ba) (Ti, Zr)O_3. Kristallografiia 8 no.3:454-456 My-Je '63. (MIRA 16:11)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

VENEVTSEVA, G.P.

Atlas of Irkutsk Province. Geod. i kart. no.6:58-61 Je '63.
(MIRA 16:9)

(Irkutsk Province—Maps)

ACC NR: AP6032959 SOURCE CODE: UR/0070/66/011/005/0731/0735

AUTHOR: Tomashpol'skiy, Yu. Ya.; Venevtsev, Yu. N.

ORG: Physicochemical Institute im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: X-ray diffraction, and electric and magnetic investigations of a system comprising a ferroelectric and a ferromagnet

SOURCE: Kristallografiya, v. 11, no. 5, 1966, 731-735

TOPIC TAGS: x ray diffraction, solid solution, ferroelectric material, ferromagnetic material, electric property, magnetic property, temperature dependence

ABSTRACT: The purpose of the investigation was to check on the feasibility of synthesizing compounds which exhibit simultaneously ferroelectric anf ferromagnetic properties, which was demonstrated by the authors in earlier investigations (FTT v. 7, no. 10, 3126, 1965). Test were made on the polycrystalline systems $BaTiO_3$ - $Sr_{0.3}La_{0.7}Mn_{0.3}$ (I) and $K_{0.5}Bi_{0.5}TiO_3$ - $Sr_{0.3}La_{0.1}MnO_3$ (II) obtained by sintering the corresponding oxides. The properties and structure of the samples were determined by x-ray analysis. The dielectric constant was measured with a bridge circuit in a weak field at 200 kcs, and the magnetic measurements were made by a procedure described elsewhere (Kristallografiya v. 8, no. 4, 1963). The conductivity was measured with a bridge. Plots are presented of the concentration dependence of the unit-cell dimensions on the logarithm of the conductivity, the temperature dependence of the dielectric constant, and the temperature dependence of the spontaneous magnetic moment.

UDC: 537.226

Card 1/2

ACC NR: AP6032959

Phase diagrams of the two systems are presented. The results show that the compounds remain ferromagnetic in almost the entire range of concentrations, and that compounds I and II have ferroelectric properties at 87 - 95 and 90 - 97 mol.% respectively. Although the ferroelectricity and the ferromagnetism combine only at low temperatures, it is assumed that the temperature range can be extended by suitably choosing the initial components. The authors thank V. P. Glushkov and A. I. Abramov for chemical analysis. Orig. art. has: 5 figures.

SUB CODE: 20/ SUBM DATE: 12May65/ ORIG REF: 005/ OTH REF: 002

Card 2/2

SEMENOV, A.I., otv.red.; FILIPPOV, Yu.V., prof., doktor tekhn.nauk, red.; BASHLAVIN, V.A., kand.tekhn.nauk, red.; VOYNOVA, V.V., red.; GURARI, Ye.L., kand.ekonom.nauk, red.; GUREVICH, I.V., red.; ZHIV, I.S., red.; ZARUTSKAYA, I.P., red.; ZASLAVSKIY, I.I., red.; KOZLOV, F.M., red.; NIKISHOV, M.I., kand.geograf.nauk, red.; SADCHIKOV, S.F., red.; TIKHOMIROV, D.I., red.; TUTOCHKINA, V.A., red.; BALANTSEVA, I.A., red. kart; BOGDANOVA, L.A., red.kart; BOCHAROVA, I.L., red.kart; VENEVTSEVA, G.P., red.kart; VOLKOVA, A.P., red.kart; GOSTEVA, N.A., red.kart; YEFIMOVA, G.N., red.kart; ZHIV, D.I., red.kart; KRAVCHENKO, A.V., red. kart; KUBRIKOVA, N.S., red.kart; KUZNETSOVA, N.A., red.kart; KURSAKOVA, I.V., red.kart; LOBZOVA, N.A., red.kart; MERTSALOVA, L.M., red.kart; MOSTMAN, S.L., red.kart; PANFILOVA, M.V., red.kart; SEMENOVA, V.D., red.kart; SMIRNOVA, T.N., red.kart; TERESHKOVA, V.S., red.kart; FEDOROVSKAYA, G.P., red.kart; FETISOVA, N.P., red.kart; FIL'GUS, Z.Kh., red.kart; SHAPIRO, Ye.M., red.kart; SHISHKIN, Ye.A., red.kart; YASHUNICHKINA, Ye.G., red.kart. V razrabotke kart prinimali uchastiye: ALISOV, B.A., prof.; BERZINA, M.Ya.; VASILEVSKIY, L.I.; GAVRILOVA, S.A., kand.geograf.nauk; GINZBURG, G.A., kand.tekhn.nauk; DOBOSHINSKAYA, I.B.; YEVSTIGNEYEVA, A.I.; LAVRENKO, Ye.M., prof.; LOZINOVA, V.N., kand. tekhn.nauk; MILANOVSKIY, Ye.Ye., kand.geologo-mineral.nauk; MIKHAYLOV, A.A., prof.; MYSHKIN, Ye.P.; PUZANOVA, V.F., kand.geograf.nauk;

(Continued on next card)

SEMENOV, A.I.----(continued) Card 2.

ROZOV, N.N., prof.; SMIRNOV, D.I.; TARASOV, A.P.; TROFIMOVSKAYA, Ye.A., kand.geograf.nauk; TUGOLESOV, D.A., kand.geologo-mineral. nauk. ZININ, I.F., tekhn.red.

[Geographical atlas for secondary school teachers] Geograficheskii atlas; dlia uchitelei srednei shkoly. Izd.2. Moskva, Glav.upr. geodezii i kartografii MVD SSSR, 1959. 191 p. (MIRA 12:11)

1. Predstavitel' Nauchno-issledovatel'skogo instituta metodov obucheniya Akademii pedagogicheskikh nauk RSFSR (for Zaslavskiy). 2. Predstavitel' Upravleniya shkol Ministerstva prosvyashcheniya RSFSR (for Tutochkina). 3. Chleny-korrespondenty AN SSSR (for Lavrenko, Mikhaylov).

(Maps)

GRINEV, A.N.; VENEVTSEVA, N.K.; FRANCHUK, V.I.; TERENT'YEV, A.P.

Quinones. Part 31: Synthesis of tetrahydro-1,4-endomethylene-anthraquinones. Zhur.ob.khim. 30 no.6:1911-1914 Je '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet.
(Anthraquinone)

GRINEV, A.N.; ZAYTSEV, I.A.; VENEVTSEVA, N.K.; TERENT'YEV, A.P.

Quinones. Part 32: Synthesis of substituted 2,5-bis(amino) -1,4-benzoquinones and 2-amino-,4-napthoquinones. Zhur.ob. khim. 30 no.6:1914-1918 Je '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet.
(Benzoquinone) (Naphthoquinone)

GRINEV, A.N.; VENEVTSEVA, N.K.

Aminomethyl and aminoethyl derivatives of 5-methoxybenzofuran.
Zhur. ob. khim. 33 no.5:1436-1442 My '63. (MIRA 16:6)

1. Institut po izyskaniyu novykh antibiotikov AMN SSSR.
(Benzofuran) (Amino group)

VENETSIANOV, Ye. A.; MOVSESOV, N. S.; BELIRASH, B. A.; SHIDLOVSKIY, M. F.; PEYVE, ...
POLIKARPOV, P. I.; BERG, A. Ya.; BLEKHMAN, A. A. and OBRENSKIY, V. Ye.;

"The Case for Explosion-proof Electrical Equipment in the Oil and Gas Industries."

report presented at the All Union Scientific and Technical Conference on the Electrical Equipment in Buildings and Outside Installations Liable to Explosions, 14-19 April 1958, Stalino
(Energet, Byulleten', 1958, No. 7, pp 29 33).

VENETSKIY, A.

Stimulating action. Sov. profsoiuzy 6 no.8:61 Jl '58. (MIRA 11:9)
(Lvov--Trade unions)

DEYGEN, M.F.; VENETSKIY, V.L.

Optical properties of F_2^+ -centers in ionic crystals. Fiz. sbor. no.3:137-140 '57. (MIRA 11:8)

1. Institut fiziki AN USSR.
(Ionic crystals—Optical properties)

VENEV, M.

Myositis ossificans circumscripta neurotica. Khirurgiia, Sofia 11 no.1:84-88 1958.

1. Iz nevrokhirurgichnoto otdelenie pri Obshchoarmeiskata bolnitsa - Sofiia.

(MYOSITIS OSSIFICANS,
circumscripta neurotica (Bul))

VENGLINSKIY, I.V. [Venhlins'kyi, I.V.]

New data on Spirialis from middle Miocene deposits of Transcarpathia. Geol.zhur. 18 no.5:70-75 '58. (MIRA 12:1)
(Transcarpathia--Pteropoda, Fossil)

VERBITSKAYA, T.N.; ZHDANOV, G.S.; VENEVTSEV, Yu.N.; SOLOV'YEV, S.P.

Electric testing and X-ray diffraction examination of the $BaTiO_3$ - $BaZrO_3$ system. Kristallografiia 3 no.2:186-196 '58. (MIRA 11:6)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova i Nauchno-issledovatel'skiy institut Ministerstva radiotekhnicheskoy promyshlennosti.
(Barium titanate)
(Barium zirconate)

VENEVTSEV, V.N.; KAPYSHEV, A.G.; SHUMOV, Yu.V.

X-ray analysis of the system $PbTiO_3$-$BaSnO_3$. Kristallografiia 2 no.2: 233-238 '57. (MIRA 11:1)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Lead titanates) (Barium stannate) (X-ray crystallography)

ZHDANOV, G.S.; SOLOV'YEV, S.P.; VENKVTSEV, Yu.N.

Structural coefficients of internal fields in seignetto-electric substances with perovskite-type structures. Kristallografiia 2 no.5:639-645 '57. (MIRA 11:1)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.
(Ferroelectric substances) (Crystal lattices)

VENEVTSEV, Yu.N.

USSR/Electricity - Dielectrics G-2

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1273

Author : Venevtsev, Yu.N., Zhdanov, G.S.
Inst : -
Title : Crystal Chemistry of Ferroelectrics with the Perovskite Structure.

Orig Pub : Izv. AN SSSR, ser. fiz., 1957, 21, No 2, 275-285

Abstract : A classification is made of ferroelectric and antiferroelectric substances of composition ABO_3 with a structure of the type of perovskite, in accordance with the type of the atomic displacements. The authors investigate also the connection between the structure and the character of the spontaneous polarization. It is shown that the ferroelectric or antiferroelectric properties of the crystal are due to the ion that has a sufficient geometric freedom of displacement within the confines of the crystalline cell. In the cells of the ferroelectrics

Card 1/3

, USSR/Electricity - Dielectrics

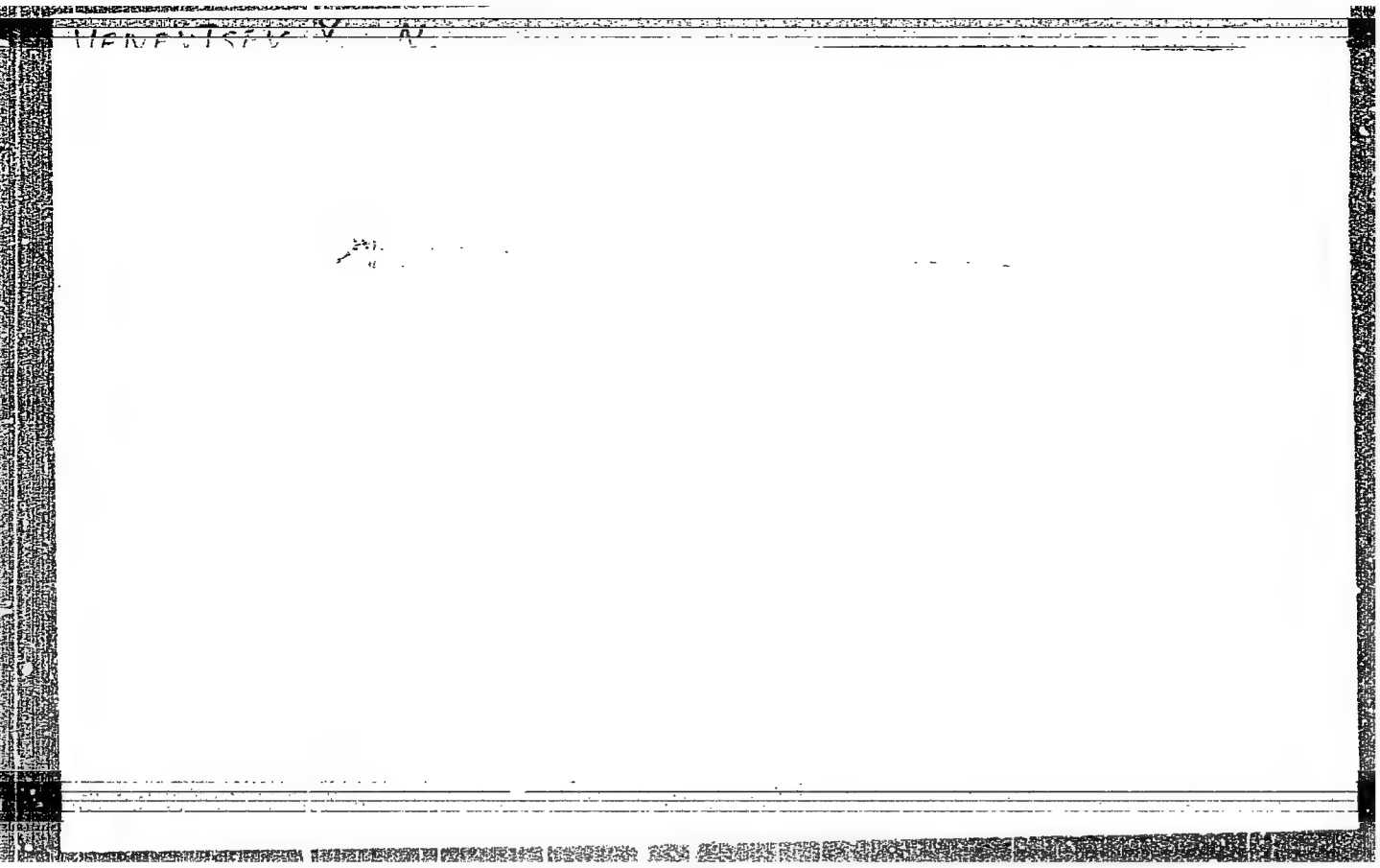
Abs Jour : Ref Zhur - Fizika, No 1, 1958, 1273

G-2

When $t > 1$, it is cation B that is free within the confines of the cell, and when $t < 1$ it is cation A. For ferroelectrics one observes values of t that are both greater and less than 1, for antiferroelectrics t is always less than 1. An investigation of the atomic displacements has shown that cations A or B can shift along the second, third, and fourth order axis and cause respectively monoclinic, rhombohedral, and tetragonal deformation of the cells, while the cells of the antiferroelectrics display only a monoclinic deformation. An investigation of the character of the chemical bond in compounds ADO_3 with a structure of the perovskite type has shown that the characteristic bond for these compounds is of the ionic type.

Bibliography, 46 titles.

Card 3/3



VENEVTSEV, Yu. N

70-5-12/31

AUTHORS: Zhdanov, G.S., Solov'yev, S.P. and Venevtsev, Yu.N.

TITLE: The Structural Coefficients of the Internal Field in Ferroelectrics with the Perovskite-type Structure. (Strukturnyye koeffitsiyenty vnutrennego polya v segnetoelektrikakh so strukturoy tipa perovskita)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 639-645 (USSR)

ABSTRACT: Data published in the literature for the values of the structural coefficients of the internal field in perovskite-type crystals are critically examined. Relations are set up between the idealised cubic perovskite and the cases in which there are dipoles in the [001], [011] or [111] directions. The structural coefficients are calculated for the tetragonal cell of $PbTiO_3$ at room temperature taking account of the ionic displacements.

The field at the i-th ion is:

$$E_i = E + \sum_{k=1}^{m} \left(\frac{4\pi}{3} + C_{ik} \right) p_k$$

where m is the number of sub-lattices each consisting of the ions of the k-th sort, E is the external field, p_k is the

Card1/4

The Structural Coefficients of the Internal Field in Ferroelectrics with the Perovskite-type Structure.

dipole moment of the k-type of ions, C_{ik} are the structural coefficients. In the case where the dipoles are in the z-direction:

$$C_{ik} = \sum_{j} \frac{2z_{jk}^2 - x_{jk}^2 - y_{jk}^2}{\left(x_{jk}^2 + y_{jk}^2 + z_{jk}^2\right)^{5/2}}$$

where x_{jk} , y_{jk} , z_{jk} are the co-ordinates of the j-th dipole of the k-th sort relative to a dipole of the i-th sort and summation is over each dipole of the k-th sort. For the cubic cell, the C_{ik} can be expressed in terms of two quantities P and Q . The values which various authors find for these values are compared, the best values being P = - 15.04102/V and Q = 4.33387/V as found by McKeehan (Phys. Rev. 43, 913, 1933 and 72, 78, 1947).

70-5-12/31

The Structural Coefficients of the Internal Field in Ferroelectrics with the Perovskite-type Structure.

$$C_{ik} = \begin{matrix} 0 & 0 & -2Q & Q & Q \\ 0 & 0 & -2P & P & P \\ -2Q & -2P & 0 & Q & Q \\ Q & P & Q & 0 & -2Q \\ Q & P & Q & -2Q & 0 \end{matrix}$$

There are 5 sub-lattices for the ABO_3 formula. δ_{ik} are the values for the truly cubic cell.

Where the distortions of the cubic cell are small (1%) the C_{ik} are different from the δ_{ik} only by 2-3%. Even for $PbTiO_3$ where the distortions are large, these do not differ by more than 20%. The actual values of the coefficients for tetragonal $PbTiO_3$ where c/a = 1.064 are calculated and tabulated with those of McKeehan (cubic, by Ewald's method) and of Hagendorn ($BaTiO_3$ with c/a = 1.010) (Zeit.f.Physik, 133, 394-421, 1952). There are 1 figure, 3 tables and 14 references, 2 of which are Slavic.

ASSOCIATION: Karpov Physico -chemical Institute
(Fiziko-khimicheskiy Institut im. L.Ya. Karpova)

Card 3/4

The Structural Coefficients of the Internal Field in Ferroelectrics with the Perovskite-type Structure. 70-5-12/31

SUBMITTED: May 31, 1957.

AVAILABLE: Library of Congress

Card 4/4

VENEVTSEVA, G.P.

Using the dotted method to map branches of agriculture (practice followed in making maps for the Agricultural Atlas of the U.S.S.R.). Geod.i kart. no.4:57-61 Ap '62. (MIRA 15:12)
(Agriculture--Maps) (Cartography)

VENEVTSEVA, G.P.

Using the dotted method to map branches of agriculture (practice followed in making maps for the Agricultural Atlas of the U.S.S.R.). Geod.i kart. no.4:57-61 Ap '62. (MIRA 15:12)
(Agriculture—Maps) (Cartography)

5.3610

77376
SOV/79-30-1-37/78

AUTHORS: Grinyev, A. N., Venevtseva, N. K., Terent'yev, A. P.

TITLE: Investigation in the Field of p-Quinones. XXIX. Azo Coupling of 2,5-bis(Dimethylamino)-1,4-benzoquinone and 2-(Dimethylamino)-1,4-napthoquinone

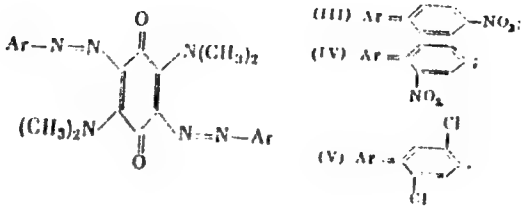
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 183-185 (USSR)

ABSTRACT: Azo coupling of quinones containing other electrodonor substituents was studied. 2,5-bis-(Dimethylamino)-1,4-benzoquinone was coupled with some diazonium salts, and 2,5-bis-(dimethylamino)-3,6-bis-(p-nitrophenylazo)-1,4-benzoquinone (III), 2,5-bis(dimethylamino)-3,6-bis-(o-nitrophenylazo)-1,4-benzoquinone (IV), and 2,5-bis-(dimethylamino)-3,6-bis-(2',5'-dichlorophenylazo 1,4-benzoquinone (V) were obtained, in high yield.

Card 1/3

Investigation in the Field of p-Quinones.
XXIX.

77376
SOV/79-30-1-37/78

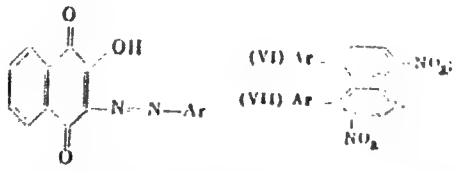


Diazonium salts were reacted with 2-dimethylamino-1,4-naphthoquinone, and instedd of the expected products of azo coupling of 2-dimethylamino-1,4-naphthoquinone, the derivatives of 2-hydroxy-1,4-naphthoquinone were obtained (2-hydroxy-3-(p-nitrophenylazo)-1,4-naphthoquinone (VI) and 2-hydroxy-3-(o-nitrophenylazo)-1,4-naphthoquinone (VII)).

Card 2/3

Investigation in the Field of p-Quinones. XXIX.

77376
SOV/79-30-1-37/78



III was obtained in 81.3% yield; IV, 38.6%; V, 65.9%; VI, 88.6%; VII, 77.1%. There is 1 table; and 11 references, 6 German, 3 U.S., 1 Italian, 1 U.K. The U.S. and U.K. references are: D. Kwalnes, J. Am. Chem. Soc., 56, 2478 (1934); L. Fieser, ibid, 70, 3203 (1948); R. Baltzly, E. Lorz, ibid, 70, 861 (1948); R. Plimpton, J. Chem. Soc., 37, 642 (1880).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: January 5, 1959

Card 3/3

GRINEV, A.N.; VENEVTSEVA, N.K.

Mannich bases in the series of derivatives of 5-hydroxybenzofuran.
Zhur.ob.khim. 33 no.3:820-824 Mr '63. (MIRA 16:3)

1. Institut po izyskaniyu novykh antibiotikov AMN SSSR.
(Mannich bases)
(Benzofuran)

GRINEV, A.N.; VENKVTSEVA, N.K.; TERENT'YEV, A.P.

Quinones. Part 14: The reaction of π-benzoquinone with π-nitro- and π-bromobenzoylacetic esters. Zhur. ob. khim. 26 no.10:2933-2934 O '56. (MIRA 11:3)

1. Moskovskiy Gosudarstvennyy universitet.
(Benzoquinone) (Acetic acid)

GRINEV, A.N.; VENETSKAYA, N.E.; TERENT'YEV, A.P.

Research in the field of quinones. Part 17: Reaction of 2,3-dichloroquinone with benzoyl acetic ester. Zhur. ob. khim. 27 no.4:1090-1091 Ap '57. (MLRA 10:8)

1. Moskovskiy gosudarstvennyy universitet.
(Quinone)

SOV/79-28-7-26/64

AUTHORS: Grinev, A. N., Venevtseva, N. K., Terent'yev, A. P.

TITLE: The Alyklation of the Substituted 5-Oxybenzofurfuranes. The Synthesis of the New Plant Growth Stimulators (Alkilirovaniye zameshchennykh 5-oksibenzofuranov; sintez novykh stimulyatorov rosta rasteniy)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, Pp. 1850-1853 (USSR)

ABSTRACT: The authors succeeded in elaborating a method of the synthesis of the substituted 5-oxybenzofurfuranes by the condensation of p-quinone with the esters of the β-keto acids (Refs 1 - 5), which practically made accessible a series of 5-oxybenzofurfurane derivatives. As a proof for the structure of the obtained compounds papers already existed on the methylation of some of these compounds with dimethyl sulfate, with either derivatives of the 5-methoxybenzofurfurane-3-carboxylic acids (Refs 3, 5), or their esters having been obtained, depending on the conditions prevailing (Ref 6). The compounds (I), (II), (III), (IV) and (V) were synthtized by the authors by the conversion of the 5-oxybenzofurfurane with dimethylsulfate

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The Alkylation of the Substituted 5-Oxybenzofurfuranes. The Synthesis of the New Plant Growth Stimulators

in alkaline medium in the presence of dioxane. In the hydrolysis of the esters (I), (III), (V) and (VI) with alcoholate the furfuranes (VII), (VIII), (IX) and (X) were obtained. The acetic acids (XI) and (XII) were obtained as final products of the alkylation of the already earlier (Ref 1) synthetized oxy acids of the benzofurfurane series with chloroacetic acid. The potassium salts of the acids (VII) - (XII) proved to be highly effective plant growth stimulators as was shown by the evidence obtained by N. A. Bazilevskaya in the M. G. U. Botanical Garden. The results of the biological experiments with these products will be published later. There are 6 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 18, 1957

SOV/79-28-7-27/64

AUTHORS: Grinev, A. N., Zaytsev, I. A., Venevtseva, M. K., Terent'yev, A. P.

TITLE: A New Method for the Synthesis of Substituted Benzofurfurane- and Indole From Esters of the Benzofurfurane- and Indole-β-Carboxylic Acids (Novyy metod polucheniya zameshchennykh benzofuranov i indolov iz efirov benzofuran-i indol-β-karbonovykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, pp. 1853-1855 (USSR)

ABSTRACT: In many cases the esters of the substituted benzofurfurane- and indole-β-carboxylic acids were better accessible than the benzofurfuranes and indoles as such. The carboxyl - group in these compounds is closely attached to them so that their cleavage demands strict conditions which lead to a great loss in substance (Refs 1, 2). In the experiments carried out to remove the carboxyl group from such and similar compounds the authors either met with difficulties, or the yields were too small (Refs 3 - 6). The synthesis of the N-alkyl- and N-aryl substituted indoles with a free β-posi-

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A New Method of the Synthesis of Substituted Benzofurfurane- and Indole From Esters of the Benzofurfurane- and Indole-β-Carboxylic Acids

tion could not be realized in these experiments at all. The authors by means of some examples suggest a convenient method for the cleavage of the esters of the benzofurfurane- and indole-β-carboxylic acids by their heating with equimolecular quantities of sulfuric or phosphoric acid in glacial acetic acid solution. The reaction takes place according to the mentioned scheme. Thus the authors by the action of sulfuric acid on the corresponding esters obtained the furfuranes (I), (II), (III) and the indole (IV), and by the action of phosphoric acid the indoles (V) and (VI). The 2-phenyl-5-carboxy-6,7-dichlorobenzofurfurane-5-oxyacetic acid was also subjected to the cleavage of sulfuric acid, with the compound (VII) having been obtained. There are 9 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 18, 1957

1. Furan derivatives--Synthesis 2. Substitution reactions 3. Plants--Growth 4. Growth substances--Synthesis

SOV/79-28-7-27/64

A New Method for the Synthesis of Substituted Benzofurfurane- and Indole From Esters of the Benzofurfurane- and Indole-β-Carboxylic Acids

1. Furan derivatives--Synthesis 2. Indoles--Synthesis 3. Carboxylic acid esters--Chemical reactions 4. Substitution reactions 5. Carboxyl radicals --Chemical effects

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SOV/79-28-7-28/64

AUTHORS: Grinev, A. N., Venevtseva, N. K., Terent'yev, A. P.

TITLE: Investigations in the Field of Quinones (Issledovaniya v oblasti khinonov) (XIII. The Investigation of the Condensation of p-Benzoquinone and 2,3-Dichloroquinone With Acetic Ester and Its Analogs (XXIII. Izucheniye kondensatsii p-benzokhinona i 2,3-dikhlorkhinona s atsetouksusnym efirom i yego analogami)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 7, pp. 1856-1864 (USSR)

ABSTRACT: In the present paper the authors carried out the condensation of the p-benzoquinone with acetic ester at lower temperatures than was the case in their earlier papers (Refs 1 - 5); the results deviated from those earlier obtained. At 80-85° and at a low concentration of p-benzoquinone in the reaction mixture mainly (at low concentrations even exclusively) a benzofurfurane derivative (formula I) is obtained, at 41-45° at low concentrations the esters (II) and (III) are formed. When the reaction takes place at 38° only the substituted

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Investigations in the Field of Quinones. XXIII. The Investigation of the Condensation of p-Benzoquinone and 2,3-Dichloroquinone With Acetic Ester and Its Analogs

benzofurfurylacetic ester (II) is obtained without admixture of (III). The substituted ester (II) on boiling its solutions in alcohol and other solvents easily converts to (III). When the reaction is carried out at low temperatures it is possible to separate also a product with a melting point of 206,5 - 207° besides (II) from the reaction products when the relative concentration of p-benzoquinone is increased; according to the analysis and the qualitative reactions carried out this product must be given the formula (IV). From the experiments carried out it may be concluded that the one or the other direction of the condensation of the quinones with esters of the β-keto acids, which may be easily controlled by the comparison of the yields of the derivatives of benzofurfurane and benzodifurfurane, does not only depend on the concentration of quinone in the reaction mixture but also to a considerable degree on temperature. Besides these factors mentioned also the nature of the reagent acting in the reaction with the quinones influences the yield of the derivatives of benzofurfurane and benzodifurfurane. There are 8 references,

AUTHOR: 507/79-28-7-38/64

Investigations in the Field of Quinones. XXIII. The Investigation of the Condensation of p-Benzoquinone and 2,5-Dichloroquinone with Acetic Ester and Its Analogs

7 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 21, 1957

1. Benzoquinones--Chemical reactions 2. Chloroquinone--Chemical reactions 3. Condensation reactions 4. Acetic acid esters--Chemical reactions

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